NOx Rules!

■ Indiana and the School of Hard NOx

On June 6, 2001, the Indiana Air Pollution Control Board unanimously adopted new rules to control nitrogen oxides (NOx) emissions from Indiana sources. These rules are the most significant air quality rules, in terms of actual tons of pollution avoided, that affect Indiana sources since the acid rain requirements of the early 1990s. When implemented in 2004, they will aid in the reduction of ground-level ozone, or smog.

Many cities nationwide experience high ozone levels during summertime weather conditions. High ozone levels can have serious health impacts, especially for the elderly, children, and people with respiratory illnesses.

Over the years, states have implemented programs to reduce ozone-causing emissions and there has been considerable improvement in air quality. Indiana counties that do not meet the ozone health standard have made progress by implementing vehicle emission checks, cleaner fuel requirements, and stricter industrial requirements.

In 1995, the Environmental Council of States and U.S. EPA formed the ***Ozone Transport Assessment Group*** (OTAG). OTAG's charge was to undertake technical research to determine the most cost-effective steps to reduce ground-level ozone.

OTAG concluded that the best step would be to reduce NOx regionally. NOx emissions from sources with tall stacks contribute significantly to regional ozone formation, since those emissions can travel relatively long distances.

In 1997, U.S. EPA issued what is known as a ***SIP Call*** for NOx. This is a directive to a state that its State Implementation Plan (SIP) needs to be amended to address a particular air quality problem. U.S. EPA cannot direct how a state will accomplish the environmental objective. The state must develop a plan to achieve the specified goal. U.S. EPA reviews the plan to determine whether it is adequate.

The SIP Call required that Indiana adopt rules to reduce NOx emissions to 233,633 tons per year by 2007. This is a 31% decrease from what the emissions would have been in 2007 without the SIP Call requirements (340,655 tons). Control measures to achieve these reductions must be in place by May 31, 2004, to comply.

Indiana's rule

U.S. EPA believed that the most cost-effective NOx reductions could be made by reducing emissions from cement kilns, electric utility boilers greater than 25 megawatts, and large industrial boilers greater than 250,000,000BTUs. The SIP Call is based on this assumption. As noted above, however, each state may achieve the required emission reductions through any means it deems appropriate to the state's particular sources of NOx. NOx emissions in Indiana are generated by approximately 25% mobile sources, 60% large stationary sources, and 15% area (smaller stationary) sources. After reviewing the NOx inventory and seeking input from all stakeholders, IDEM concluded that the three categories identified by U.S. EPA were likely to be the most cost-effective source categories for control. Of the approximately 206,000 tons that make up the large stationary source portion of the inventory, utilities contribute about 40% and large industrial sources (boilers and cement kilns) about 20%. Though estimates vary widely

on the anticipated control costs for these three categories, IDEM estimated the cost-effectiveness of the rule to be approximately $2,200 per ton of NOx removed. This cost is comparable to or lower than the cost-effectiveness of other air pollution control rules.

IDEM published its draft NOx rules on December 1, 2000. The draft rules followed U.S. EPA's model rule in many respects. U.S. EPA suggested that states use a "cap and trade" program to achieve the required NOx reductions. U.S. EPA would manage the trading program, with states responsible for the initial and subsequent allocation of NOx allowances (each "allowance" would be worth one ton of NOx emitted, similar to the acid rain allowance trading program for sulfur dioxide). The states would also be responsible for distributing allowances to new sources or to energy efficiency and clean energy projects, if they chose to reserve allowances for these types of sources. IDEM's draft rule included the trading program, many elements of U.S. EPA's rule regarding monitoring requirements, the compliance supplement pool (a pool of extra allowances available either in exchange for early reductions or for sources that made all reasonable efforts to meet the compliance deadline but were unable to), and record keeping and reporting. The draft rule also included a new source setaside as well as a setaside for energy efficiency and clean energy projects.

On February 7, 2001, the Indiana Air Pollution Control Board voted to propose the rule. IDEM acknowledged that several very significant and substantive issues remained open for discussion, but urged the Board to move the rulemaking to the next step because of the threat of imposition of a federal plan. The key issues remaining open at this time were the following:

1) how to balance the needs of existing sources with new and expected future sources, including the size of the new source setaside and how frequently the allocations should be made;
2) how to distribute the large industrial sources' allocations;
3) how to coordinate the SIP Call rule with a separate federal requirement issued under Section 126 of the Clean Air Act, which required similar NOx reductions from 25 of Indiana's 94 utility units by May 1, 2003;
4) whether U.S. EPA would accept any of several alternative compliance proposals that would extend the compliance date for sources committing to control multiple pollutants;
5) how to reduce the monitoring costs for a certain category of large industrial boilers, i.e. those fired with blast furnace gas (which is inherently low NOx emitting);
6) how to design provisions to encourage energy efficiency and renewable energy projects through the setaside of allowances for their use.

Between February 7 and June 6, when the Board voted unanimously to final adopt the rule, IDEM held more than 25 meetings with interested parties, either individually or in groups, to discuss these and many other issues. IDEM worked closely with U.S. EPA throughout this period, to ensure that changes IDEM was considering for the rule would not jeopardize federal approval. The rule as final adopted contains a number of policy choices intended to reduce the overall costs of the rule, balance the needs of new and existing power producers, and encourage (or at least not discourage) a reliable and increasingly clean supply of power in Indiana. Following are some highlights of the rule.

Electric Generating Facilities

The rule balances the needs of new and existing electric generating facilities by providing that allocations will be made for three years at a time, three years in advance. This provides existing sources with sufficient lead time and greater certainty of their control needs. It also means, however, that new sources may have to wait up to seven

years before being considered an "existing" source for allowance allocation. Therefore, the rule establishes a 5% setaside of allowances for new sources for the first six years of the program. After 2009, the setaside will be 2% of the budget for new sources. The rule includes an annual process for IDEM to distribute the new source allowances.

Large industrial boilers

The final rule reduces the costs for a certain subset of large industrial boilers—those fueled predominantly by blast furnace gas--by removing them from the trading program into a separate rule with emission limitations and fuel restrictions. This enabled IDEM to require less costly monitoring, as well as freeing up additional trading allowances (thereby lowering compliance costs) for the large industrial sources remaining in the trading program. IDEM evaluated a number of approaches for allocating the allowances among the large industrial sources, but because of the range of differences among them, no single formula was entirely equitable. So instead, IDEM included a source specific allocation in the rule, which will be revisited in 2006 to determine if it is still appropriate.

Energy efficiency/renewable energy setaside

The final rule sets aside 2% (1079 tons) of the trading budget for projects that reduce energy demand, meet specific standards of efficiency, or use renewable fuels. Examples of projects that would qualify for this setaside include: wind and solar powered projects, fuel cells, and combined heat and power projects that meet an established efficiency standard. Indiana is the only state in the midwest to include this progressive provision in its rule, and of the five states that have a setaside, Indiana's is the second largest. Projects will be evaluated on an annual basis by IDEM and the Indiana Department of Commerce's Energy Office and awarded allowances if they meet the criteria set forth in the rule. If there are not enough projects to use all the setaside, half of the excess will be distributed to existing large industrial boilers and half will roll over into the next year's setaside.

Sources subject to both the SIP Call and the Section 126 rule

The final Indiana NOx rule addresses sources that are also subject to NOx reduction requirements under Section 126 of the Act. In order to provide a smooth transition for those sources from the federal program in 2003 to the state program in 2004, the Indiana rule states that these sources shall comply beginning May 1, 2004 (other states have until May 31).

Next steps

IDEM has completed the state rule promulgation process and the rule will be effective on September 13, 2001. IDEM is expecting final federal approval of the rule soon. IDEM is working with U.S. EPA to develop necessary forms, guidance and training, and is looking forward to working with interested parties and affected sources on the important work of implementing this significant rule.